

What is claimed is:

1. A process for preparing amorphous silicon by reducing halosilanes with a metal, characterized in that the reduction is carried out in the presence of an apolar solvent, unless a halogen group of the halosilane is F, in which case the presence of an apolar solvent is unnecessary.
2. The process of claim 1, characterized in that the halosilane used is a silane of Br, Cl, I or F, or an organosilane of Br, Cl, I or F.
3. The process of claim 1 or 2, wherein the halosilanes are selected from silicon tetrahalide and hexafluorosilicate.
4. The process of claim 3, characterized in that the silicon tetrahalide is selected from silicon tetrachloride, obtained by
 - a.a. reacting SiO_2 with chlorine in the presence of a reducing agent,
 - a.b. reacting silicon with chlorine or chlorine compounds, or
 - a.c. obtaining the SiCl_4 as a by-product of the Müller-Rochow synthesis or of the preparation of chlorosilanes,and silicon tetrafluoride, obtained by reaction of SiO_2 or silicates with hydrogen fluoride or a fluoride of a metal of group I or II of the Periodic Table to give SiF_4 with release of H_2O , or of hexafluorosilicates with supply of heat to give SiF_4

and metal fluoride and reaction of the SiF_4 with a metal of the group I or II to give Si and a metal fluoride.

5. The process of claim 4, characterized in that the metal used to convert the SiF_4 is reacted in the gas phase or in solution.
6. The process of any of the preceding claims, characterized in that the metal used is a metal of group I or II of the Periodic Table.
7. The process of any of the preceding claims, characterized in that the metal is molten in the solvent.
8. The process according to any of the preceding claims, characterized in that the metal used is sodium.
9. The process of any of the preceding claims, characterized in that the metal is used in a state having an activated surface.
10. The process of any of the preceding claims, characterized in that the metal is used as a powder, dust or dispersion, especially at room temperature.
11. The process of any of the preceding claims, characterized in that an apolar solvent is used whose boiling point is higher than the melting point of the metal used (at atmospheric pressure).
12. The process of any of the preceding claims, characterized in that it is carried out under reflux conditions for the solvent.

13. The process of any of the preceding claims, characterized in that the uncoated amorphous silicon obtained in a mixture with a metal halide is isolated via a separating process.
14. The process of any of the preceding claims, characterized in that it is used to prepare highly pure amorphous silicon.
15. The process of any of the preceding claims, characterized in that it is used to prepare coated amorphous silicon.
16. The process of any of the preceding claims, characterized in that it is used to alter the coating of the coated amorphous silicon.
17. The process of any of the preceding claims, characterized in that it is used to convert crystalline to amorphous silicon.
18. The process of any of the preceding claims, characterized in that it is used to purify silicon.
19. The process of any of the preceding claims, which additionally comprises the reaction of the amorphous silicon with organohalogens in order to prepare organohalosilanes, in particular methylchlorosilanes, characterized in that the amorphous silicon used is black or brown amorphous silicon.
20. The process of claim 19, characterized in that the reaction is carried out without catalyst.

21. The process of claim 19 or 20, characterized in that the reaction is carried out using a catalyst.
22. The process of claim 21, characterized in that the reaction is carried out at temperatures of < 300°C.
23. The process of any of claims 19 to 22, characterized in that black amorphous silicon present in a mixture with a metal halide is reacted with the organohalogen.
24. The process of any of claims 19 to 23, characterized in that fine, especially nondusting, silicon powder is used.
25. The process of any of claims 19 to 24, characterized in that the reaction is carried out in a fluidized bed.
26. The process of any of claims 19 to 25, characterized in that the reaction of the amorphous silicon with the organohalogen is brought about with microwave energy.
27. The process of claim 26, characterized in that the amorphous silicon is used in conjunction with a substance which absorbs microwave energy and transfers thermal energy to silicon.